



JHPIEGO

An Affiliate of
Johns Hopkins
University

A GLOBAL LEADER IN IMPROVING HEALTH CARE FOR WOMEN AND FAMILIES

The background of the cover features several large, light blue, overlapping circles of varying sizes, creating a pattern that resembles a molecular structure or a network.

measuring the effects of
behavior change
interventions in Nepal
with population-based survey results

Maternal
& Neonatal
& Health



J H P I E G O

An Affiliate of
Johns Hopkins
University

A GLOBAL LEADER IN IMPROVING HEALTH CARE FOR WOMEN AND FAMILIES

measuring the effects of
behavior change
interventions in Nepal
with population-based survey results

Suruchi Sood, PhD
Urvashi Chandra, PhD
Pius Mishra, PhD
Shailes Neupane



JOHNS HOPKINS
BLOOMBERG
SCHOOL of PUBLIC HEALTH

Center for Communication Programs

Maternal
& Neonatal
Health

The Maternal and Neonatal Health (MNH) Program is committed to saving mothers' and newborns' lives by increasing the timely use of key maternal and neonatal health and nutrition practices. The MNH Program is jointly implemented by JHPIEGO, the Johns Hopkins Center for Communication Programs, the Centre for Development and Population Activities, and the Program for Appropriate Technology in Health.
www.mnh.jhpiego.org

JHPIEGO, an affiliate of Johns Hopkins University, builds global and local partnerships to enhance the quality of health care services for women and families around the world. JHPIEGO is a global leader in the creation of innovative and effective approaches to developing human resources for health.
www.jhpiego.org

Copyright © 2004 by JHPIEGO. All rights reserved.

Published by:

JHPIEGO
Brown's Wharf
1615 Thames Street
Baltimore, Maryland 21231-3492, USA

Editors: Erin Wagner, Sandra Crump

Cover Design and Layout: Youngae Kim

Inquiries should be directed to:

Suruchi Sood, PhD
Senior Program Evaluation Officer
Johns Hopkins Bloomberg School of Public Health
Center for Communication Programs
111 Market Place
Suite # 310
Baltimore, MD 21202
E-mail: ssood@jhuccp.org

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES.....	iv
ACKNOWLEDGMENTS.....	vii
ABBREVIATIONS AND ACRONYMS	viii
EXECUTIVE SUMMARY.....	ix
INTRODUCTION	1
SUMATA Initiative.....	3
Objectives of the Survey	3
METHODOLOGY	3
Selection of Sites	3
Selection of Respondents.....	4
Profile of Respondents.....	5
Limitations of the Study.....	7
EXPOSURE TO THE SUMATA INITIATIVE.....	8
Awareness of Information Contained in the SUMATA Initiative	9
Actionability	10
INFLUENCE OF SUMATA INITIATIVE.....	11
Knowledge of Danger Signs during Pregnancy.....	11
Knowledge of Danger Signs during Childbirth.....	12
Knowledge of Danger Signs during the Postpartum Period.....	16
Knowledge of Danger Signs in the Newborn.....	18
Knowledge of Community Schemes for the Welfare of Women and Newborns	19
Antenatal Care Visits	21
Arrangements for Safe Childbirth	21
Place of Childbirth	22
Type of Assistance during Childbirth	23
CONCLUSIONS.....	25
LESSONS LEARNED.....	26

LIST OF TABLES AND FIGURES

Table 1	Selection of Sites	4
Table 2	Sample Size, by District and Survey	4
Table 3	Mean Age of Respondents, by Type	5
Table 4	Percent Distribution of Respondents, by Occupation	6
Table 5	Percent Distribution of Respondents, by Ethnicity and Survey	7
Table 6	Percent of Respondents Who Know of Community Schemes for the Welfare of Women and Newborns	20
Table 7	Percent of Community Leaders Who Know of Community Schemes for the Welfare of Women and Newborns	20
Table 8	Percent of Respondents Who Made Arrangements for Childbirth.....	22
Table 9	Percent Distribution of Respondents, by Place of Childbirth	23
Table 10	Percent Distribution of Respondents, by Type of Assistance during Childbirth.....	24
Figure 1	Exposure to SUMATA Initiative in Target Districts	8
Figure 2	Exposure to SUMATA Initiative, by Respondent Type.....	9
Figure 3	Awareness of Information Contained in SUMATA Initiative	9
Figure 4	Use of Information Contained in SUMATA Initiative	10
Figure 5	Intention to Use Information Contained in SUMATA Initiative.....	11
Figure 6	Knowledge of Vaginal Bleeding as a Danger Sign during Pregnancy, by Survey.....	12
Figure 7	Knowledge of Vaginal Bleeding as a Danger Sign during Pregnancy, by Exposure.....	12
Figure 8	Knowledge of Severe Vaginal Bleeding as a Danger Sign during Childbirth, by Survey	13
Figure 9	Knowledge of Severe Vaginal Bleeding as a Danger Sign during Childbirth, by Exposure	13
Figure 10	Knowledge of Prolonged Labor as a Danger Sign during Childbirth, by Survey	14
Figure 11	Knowledge of Prolonged Labor as a Danger Sign during Childbirth, by Exposure	14
Figure 12	Knowledge of Retained Placenta as a Danger Sign during Childbirth, by Survey	15
Figure 13	Knowledge of Retained Placenta as a Danger Sign during Childbirth, by Exposure	15
Figure 14	Knowledge of Severe Bleeding as a Danger Sign during the Postpartum Period, by Survey	16
Figure 15	Knowledge of Severe Bleeding as a Danger Sign during the Postpartum Period, by Exposure	17
Figure 16	Knowledge of High Fever as a Danger Sign during the Postpartum Period, by Survey	17

Figure 17	Knowledge of High Fever as a Danger Sign during the Postpartum Period, by Exposure	18
Figure 18	Knowledge of Difficult or Fast Breathing as a Danger Sign in the Newborn, by Survey	18
Figure 19	Knowledge of Difficult or Fast Breathing as a Danger Sign in the Newborn, by Exposure	19
Figure 20	Four or More ANC Visits, by Exposure	21

ACKNOWLEDGMENTS

Catherine Elkins, PhD, Director of Monitoring, Evaluation, and Research for the MNH Program, oversaw the preparation of this behavior change impact report and three others for the MNH Program. The authors also thank the following individuals and organizations for their contributions to this study:

CONTRIBUTING AUTHORS/REVIEWERS

Allisyn Moran
Anita Gibson
Diane Summers
Chhatra Amatya

INTERNATIONAL PARTNERS

JHPIEGO
Johns Hopkins University, Center for Communication Programs
Centre for Development and Population Activities (CEDPA)

NATIONAL LEADERSHIP

Ministry of Health, Department of Health Services (DHS)
Family Health Division (FHD)
National Health Training Center (NHTC)
National Health Education, Information and Communication Center (NHEICC)

STAKEHOLDERS: INGOS

UNFPA
United Nations Fund (UNF)
UNICEF
Nepal Safer Motherhood Project (NSMP)
United Mission to Nepal (UMN)

STAKEHOLDERS: NGOS

Ama Milan Kendra (AMK)
Safe Motherhood Network

CONTRIBUTORS TO IMPLEMENTATION

Research (Baseline, Monitoring & Evaluation)

Valley Research Group

Advertising Company/Public Relations

MAHA (Mr. Madan Krishna Shrestha and Mr. Hari Bansha Acharya)
McCann Erickson/Nepal

PRISMA ADVERTISING

This publication was made possible through support provided by the Maternal and Child Health Division, Office of Health, Infectious Diseases and Nutrition, Bureau for Global Health, U.S. Agency for International Development, under the terms of Award No. HRN-00-98-00043-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.

ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
BCC	Behavior Change Communication
BP/CR	Birth Preparedness and Complication Readiness
BPP	Birth Preparedness Package
CEDPA	Centre for Development and Population Activities
CPW	Currently Pregnant Women
DFID	Department for International Development
HMG	His Majesty's Government (of Nepal)
IEC	Information, Education, and Communication
JHU/CCP	Johns Hopkins University/Center for Communication Programs
MCHW	Maternal and Child Health Worker
MMMS	Maternal Mortality and Morbidity Study
MNH	Maternal and Neonatal Health (Program)
NGO	Nongovernmental Organization
NHEICC	National Health Education, Information, and Communication Centre
NSMP	Nepal Safer Motherhood Project
PATH	Program for Appropriate Technology in Health
SM	Safe Motherhood
SMSC	Safe Motherhood Subcommittee
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VDC	Village Development Committee

EXECUTIVE SUMMARY

The Maternal and Neonatal Health (MNH) Program has been working in Nepal since June 1999, as a partnership of JHPIEGO, the Johns Hopkins University Center for Communication Programs (JHU/CCP), and the Centre for Development and Population Activities (CEDPA), to increase access to and demand for safe motherhood (SM) services. As part of this Program, MNH/Nepal supported the National Health Education, Information, and Communication Centre (NHEICC) in its efforts to develop and implement the SUMATA (a Nepali acronym for “Care, Share, and Prepare”) initiative. This integrated information, education, communication/behavior change communication (IEC/BCC) intervention was launched on 8 March 2002 as a multi-level SM behavior change strategy in support of efforts of His Majesty’s Government (HMG) of Nepal to promote adoption of appropriate maternal and newborn health behaviors, and to increase access to and use of SM services.

SUMATA helped to identify SM as a social issue, rather than a purely medical problem, by focusing on the social dimension of maternal mortality, and by highlighting the complementarities between health service provision and demand/social behaviors and norms. Communication strategies were developed with standardized SM messages, which have been incorporated into IEC/BCC materials such as posters, billboards, lampshades and banners, radio and TV dramas, and street theater. Radio dramas highlighting general SM messages have been broadcast nationally.

In addition to mass media, the *Jeevan Suraksha* (Birth Preparedness Package [BPP]) was developed to mobilize communities around birth preparedness and complication readiness (BP/CR). The BPP provides information about recommended actions to be taken at each stage of a normal pregnancy and birth, identifies the danger signs that indicate possible complications, and encourages financial planning for normal births and for possible emergencies. It also helps community mobilizers to address social issues related to caring for the pregnant woman within the family.

Specific SUMATA activities included the following:

- Radio spots, jingles, and dramas
- Print materials such as posters, banners, and “danglers”
- Street theater
- Television drama
- *Jeevan Suraksha*

The intended audience for SUMATA was women, husbands, families, community leaders, and community-based health workers.

MNH/Nepal supported implementation of the SUMATA initiative in the districts of Baglung and Lalitpur. Other SM partners have implemented SUMATA in other districts of the country. A baseline situational analysis was carried out in August 2001, and a followup survey was conducted in May 2003. This report will highlight key findings from the implementation of the SUMATA initiative in the two districts supported by MNH/Nepal.

The main objective of the followup study was to assess changes in knowledge, attitudes, intentions, practices, and advocacy for BP/CR as a result of exposure to the SUMATA initiative among married women, their families, and communities.

METHODOLOGY

The followup survey was undertaken in selected Village Development Committees (VDCs) in the districts of Baglung and Lalitpur. Initially, the SUMATA initiative was targeted to rural populations; therefore, the baseline situational analysis included only a rural sample. Given the political instability in Nepal in the ensuing period, many SUMATA activities could be conducted only in and around district headquarters for security reasons, and messages appropriate for urban audiences were developed. Accordingly, urban municipalities were also covered in the followup survey sampling. However, comparative analysis for this report has been restricted to data from rural areas of the aforementioned districts. Because the baseline situational analysis did not have a comparable urban sample, only the rural samples in the two districts can be compared across the two time periods.

The total sample size for the baseline situational analysis was 1,194. The followup included 1,208 respondents. In the followup survey, the sample comprised currently pregnant women (CPW), women with a live birth in the past 3 months, husbands, family members (including mothers-in-law), health workers, and community leaders. The baseline situational analysis covered the same categories of respondents with the exception of women with a live birth in the past 3 months, who were not interviewed at that time. This report focuses on research findings related to currently pregnant married women, married women with a live birth in the past 3 months, husbands, and family members. The profile of respondents in both of the surveys was similar in terms of age, education, ethnicity, socio-economic classification, and marital status.

KEY RESEARCH FINDINGS

Exposure to and Impact of the SUMATA Initiative

The survey findings show that slightly less than half (49.1%) of the sample population was exposed to the SUMATA initiative in the target districts. Some 21 percent of the respondents were counseled using the *Jeevan Suraksha* (Birth Preparedness Package), and about 41 percent were exposed to SUMATA mass and local media messages by the time of the followup survey. Among those exposed to the SUMATA initiative, an overwhelming majority (94.8%) comprehended the messages contained in SUMATA materials, and there were no significant differences by respondent type. More than three-fourths of the respondents reported having used the information contained in the SUMATA initiative, and roughly 89 percent acknowledged their intention to do so in the future.

Knowledge of Danger Signs during Pregnancy

The results demonstrate a substantial increase in awareness levels between the baseline situational analysis and the followup survey with respect to the danger sign of vaginal bleeding during pregnancy. The largest increase was among women (both CPW and women with a live birth in the past 3 months—from 30.5% to 50.9%) and family members (from 29.4% to 46.4%). Moreover, the increase in awareness among respondents who were exposed to the SUMATA initiative was greater than among those who were not exposed.

Knowledge of Danger Signs during Childbirth

The results demonstrate higher awareness levels at the followup survey with respect to severe vaginal bleeding as a danger sign during childbirth. Significantly, awareness levels were higher in the exposed group compared to the unexposed group. This was true for all respondent types.

One anomalous result is that awareness levels were higher at the baseline situational analysis than at followup for the danger sign of prolonged labor. This difference was observed across all respondent types. At the followup survey, however, those exposed to the SUMATA initiative were still more likely to report awareness than were those not exposed to the SUMATA initiative.

With respect to retained placenta during childbirth, the survey results do not show a significant difference in awareness among respondents to the two surveys. Another anomaly that emerged in the results was that family members who were exposed to the SUMATA initiative were less likely to be aware of this danger sign than were the family members who were not exposed (6.4% versus 12.7%). Although all of these levels of awareness may seem low, the relatively short duration of SUMATA activities should also be taken into account in interpreting these results.

Knowledge of Danger Signs during Postpartum Period

The difference in the awareness levels of respondents, particularly women and husbands, from the baseline situational analysis to the followup survey was not very substantial for knowledge of specific danger signs during the postpartum period (the first 4 weeks after childbirth), including vaginal bleeding and high fever. The SUMATA initiative nonetheless demonstrated a positive impact, as awareness levels among the exposed group were generally higher than in the unexposed group. This effect was especially evident for knowledge of severe vaginal bleeding as a danger sign in the postpartum period.

Knowledge of Danger Signs in Newborns

A clear increase occurred between the baseline situational analysis and the followup survey in the percentage of respondents reporting knowledge of danger signs in newborns. For the purpose of this research, the neonatal period was defined as the first 4 weeks after birth. About 45 percent of women at the baseline situational analysis reported that difficult or fast breathing in the newborn is a danger sign. At the followup, this danger sign was recognized by 55 percent of women. There was only a marginal increase among husbands, but among family members a substantial increase of nearly 20 percent from the baseline to followup was observed. Also, the followup survey results show that those exposed to SUMATA messages were more aware than those who were not exposed of difficult or fast breathing as a danger sign in newborns.

Knowledge of Community Schemes for Welfare of Women and Newborns

There was a considerable increase in awareness levels from the baseline situational analysis to the followup survey with respect to schemes for transportation and finances. This was true for women, husbands, family members, and community leaders. Respondents exposed to the SUMATA initiative reported higher levels of awareness of such schemes than did those who were not exposed. It is important to note, however, that awareness levels seemed to be higher even among the unexposed group when compared to the levels observed at the baseline situational analysis. The

unanswered question is the extent to which the rise in awareness levels among the exposed group can be attributed to the SUMATA initiative.

Furthermore, although about 68 percent of the respondents who were exposed to the SUMATA initiative were cognizant of schemes for funds, 76 percent of the unexposed community leaders were also cognizant of funding schemes. This strongly suggests that increased awareness may not be solely attributable to the SUMATA initiative.

Antenatal Care Visits

Most of the respondents in all categories reported that they had undertaken four or more antenatal care (ANC) visits. There was no significant difference between exposed and unexposed groups.

Arrangements for Safe Childbirth

With regard to arrangements for safe childbirth, the baseline situational analysis shows results substantially lower than those for SUMATA-exposed groups at the followup. At the same time, results for the unexposed group were also significantly higher than at the baseline. It is likely that interventions other than the SUMATA initiative were partially responsible for improved arrangements in preparing for safe childbirth.

Place of Childbirth and Type of Assistance during Childbirth

The number of respondents reporting that childbirth in a hospital increased from the baseline situational analysis results to the followup survey. Survey results pertaining to person(s) present at childbirth also indicated that there were positive gains between the baseline situational analysis and the followup survey. Overall, more women respondents at followup reported giving birth in the presence of a skilled provider compared to the baseline. However, differences between those exposed and not exposed to the SUMATA initiative were unexpected. Women exposed to the SUMATA initiative were more likely than unexposed women to report childbirth at home in the presence of an maternal and child health worker (MCHW) (4%, compared to none) or at home with assistance from a community provider (25%, compared to 12%). Women who were not exposed to the SUMATA initiative were significantly more likely to give birth with a doctor in attendance, but they were also marginally more likely to give birth at home with no skilled assistance. This may be attributed in part to the various programs being implemented in the field of SM in these two districts by other organizations.

MEASURING THE EFFECTS OF BEHAVIOR CHANGE INTERVENTIONS IN NEPAL

INTRODUCTION

The Maternal and Neonatal Health (MNH) Program, funded by the United States Agency for International Development (USAID), was initiated in 1998 to increase the use of key maternal and newborn health and nutrition interventions in developing countries in an effort to improve maternal and newborn survival. The Program is a partnership between JHPIEGO, the Centre for Population and Development Activities (CEDPA), the Johns Hopkins University Center for Communication Programs (JHU/CCP), and the Program for Appropriate Technologies in Health (PATH).

In 1998, the Government of Nepal conducted the national Maternal Mortality and Morbidity Study (MMMS), which gathered important data demonstrating the extent of the adverse maternal health situation in Nepal.¹ At 539 per 100,000, the maternal mortality rate in Nepal is one of the highest in South Asia. Contributing factors include the economic, geographic, and cultural conditions in the country. Less than 10 percent of births take place at a health facility, and 87 percent take place without the presence of a trained birth attendant.²

The MNH Program in Nepal worked in collaboration with government partners and international and local nongovernmental organizations (NGOs) to improve maternal and newborn survival by supporting the government's efforts to promote the adoption of appropriate maternal and newborn health behaviors and to increase access to and the use of high-quality maternal and neonatal health services. A key partner at the government level has been the Safe Motherhood Subcommittee (SMSC), which coordinates safe motherhood (SM) activities at the country level.³ The work of the MNH Program in Nepal was based on a network of national- and local-level partnerships, whereby MNH/Nepal sought to complement and build upon the work of other SM stakeholders, collaborating with them to develop tools and approaches that can be adopted and scaled up by the government and other agencies as part of the national program. MNH/Nepal represents a partnership of three primary agencies—JHPIEGO, CEDPA, and JHU/CCP—working together to contribute to:

- A more focused and coordinated policy environment for SM;
- Improved quality of maternal and newborn health services in facilities and communities throughout the country; and
- The adoption of appropriate maternal and newborn health behaviors, including increased access to and demand for high-quality maternal and newborn health services.

A key component of the MNH Program in Nepal was interventions encouraging adoption of appropriate maternal and newborn health behaviors, including birth preparedness and complication

¹ *Maternal Mortality and Morbidity Study, 1998*. Family Health Division, Department of Health Services, His Majesty's Government of Nepal.

² Ministry of Health [Nepal], New Era, and ORC Macro. 2002. *Nepal Demographic and Health Survey, 2001*. Calverton, MD, USA: Family Health Division, Ministry of Health; New Era; and ORC Macro.

³ The SMSC includes 13 representatives from 12 organizations: Family Health Division of the MOH; WHO, USAID, UNFPA, GTZ, DFID, MNH Program, UNICEF, SM Network, Save the Children, the SMSC Coordinator, JICA, and the USAID-funded bilateral Nepal Family Health Program.

readiness (BP/CR). To build consensus around this component, a national-level workshop called “Speaking with One Voice” was held in November 2000. This workshop laid the foundation for a unified approach to increasing access to SM healthcare services and sowed the seeds for an integrated national information, education, communication, and behavior change communication (IEC/BCC) strategy focusing on key behaviors promoting maternal and neonatal survival. It also provided a basis for the development of a SM advocacy strategy and SM messages and informed the development of the *Jeevan Suraksha* (Birth Preparedness Package [BPP]), designed as part of the SUMATA initiative and used as a tool for both interpersonal communication and social mobilization.

Throughout the SM initiative, programs have used the Stages of Change Theory as an underlying theory of behavior change.⁴ This theory stipulates that individuals move through stages in the behavior change process: from acquiring knowledge, to formulating intentions, to performing behaviors. In SM, these stages are denoted as knowledge of the danger signs of pregnancy, knowledge of available and appropriate obstetric services, intentions to use services, intentions to perform certain actions to prepare for birth (plan for a skilled provider, plan to save money, plan to arrange backup transport if the need arises), and the actual carrying out of these behaviors. Moving individuals from knowledge to action is a long process, and it may take many years to measure changes in individual behaviors.

BP/CR is a strategy developed by the MNH Program to address the stages of change at various levels. BP/CR encompasses the responsibilities, actions, practices, and skills needed to help ensure the safety and well-being of the woman and her baby throughout pregnancy, labor, childbirth, and the postpartum period. It outlines plans and actions that can be implemented by the individual woman, her family, and her community, and by providers, facilities, and policymakers, wherever life-threatening delays may occur—at home, on the way to care, or at the place of care. A key element of birth preparedness is identifying a skilled provider who can support the woman during labor and childbirth, and who can manage complications that may arise or refer the woman and/or the baby to a higher level of care.

MNH/Nepal aimed to increase access to and demand for services by implementing the following strategies:

- Standardization and dissemination of SM and birth preparedness messages;
- Capacity-building for mothers, families, and communities to enable planning for normal and emergency births by using the BPP; and
- Capacity-building for community-based health workers—such as traditional birth attendants, female community health volunteers, and maternal and child health workers (MCHWs)—to promote and use the BPP.

Three districts (Lalitpur, Baglung, and Kailali) were identified for implementation of the SUMATA initiative, and a baseline situational analysis was undertaken in each district. Because of the political situation and security risks in the country in the ensuing period, the SUMATA initiative was restricted to the districts of Baglung and Lalitpur. Consequently, the followup survey was conducted only in these two districts and the sample for this report comes only from these two districts.

⁴ Stanton C. 2004. Methodological issues in the measurement of birth preparedness in support of safe motherhood. *Evaluation Review* (in press).

SUMATA Initiative

The SUMATA initiative was launched on 8 March 2002 as a multilevel SM behavior change initiative designed to support the efforts of the Government of Nepal to reduce the high maternal mortality rate in Nepal. It was designed and developed in collaboration between SM partners under the leadership of the National Health Education Information Communication Center (NHEICC) of the Department of Health Services and the Ministry of Health with technical assistance from MNH/Nepal. SMSC members, particularly the Nepal Safer Motherhood Project (NSMP), played key roles in all stages of the development phase.

The SUMATA initiative was designed in line with principles embodied in the national IEC/BCC strategy, focusing on the social dimensions of maternal mortality and shared responsibility for safe birth. The initiative primarily addresses husbands and mothers-in-law, calling them to **care** for their wives/daughters-in-law during pregnancy, birth, and the postpartum period; to **share** love, information, and the workload; and to **prepare** for childbirth and any complications that could occur during that stage. In districts with upgraded Emergency Obstetric Care services, SUMATA includes complication readiness, recognition of danger signs, and seeking emergency care, if required.

SUMATA is an acronym for Care, Share, and Prepare. In Nepali, it reads:

- **SU:** Sushar Garaun (Care)
- **MA:** Maya Mamata Badaun (Share)
- **TA:** Tayari Garaun (Prepare)

SUMATA is also an auspicious word for mother in Sanskrit and can be broken down into *Surakschhi* (safe) *Mata* (mother).

The specific activities of this initiative included radio spots and jingles, print materials, street theater, a television drama (aired July 2003), and the *Jeevan Suraksha* (BPP).

Objectives of the Survey

Baseline data collection occurred in Nepal in August 2001. The followup survey occurred in May 2003 and was primarily intended to gauge the impact of the SUMATA initiative on target audiences in the two pilot districts. The main objectives of this followup survey were to:

- Assess changes in knowledge, attitude, approval, intentions, practices, and advocacy of BP/CR through the use of the BPP among women, families, and community leaders;
- Examine perceptions about plans for transport and financing schemes; and
- Obtain information on exposure to SM and birth preparedness messages.

METHODOLOGY

Selection of Sites

This study was conducted in four Village Development Committees (VDCs) and one municipality in the district of Baglung, as well as in three VDCs and one municipality in Lalitpur district (**Table 1**).

Table 1. Selection of Sites

Name of District	VDCs and Municipality
Baglung	Khushmi, Resh, Bhakunde, and Tityang (VDCs) Kalika Municipality
Lalitpur	Dhapakhel, Sidhipur, and Dukuchhap (VDCs) Lalitpur Municipality

Of those VDCs or municipalities mentioned in the above table, only Khushmi and Resh in Baglung and Dhapakhel and Sidhipur in Lalitpur were also covered in the baseline situational analysis.

This analysis does not include results from the urban municipalities of Lalitpur and Baglung because the baseline situational analysis was undertaken only in rural areas of Nepal. That decision was made based on an earlier assumption that the SUMATA initiative would be most relevant for rural audiences. However, given the political situation in Nepal, many of the local activities (such as street theater performances) had to be conducted in and around urban areas. Because the baseline situational analysis did not have a comparable urban sample, this report only compares the rural samples in the two districts.

Selection of Respondents

At the followup survey, the sample comprised 1,208 respondents. Of these, 693 were from Baglung and 515 were from Lalitpur. In comparison, the baseline situational analysis (1,194 respondents) had 662 respondents from Baglung and 532 from Lalitpur (**Table 2**).

Table 2. Sample Size, by District and Survey

District	Respondent Type									
	Women (currently pregnant)		Women (with a live birth)		Husbands		Family Members		Community Leaders	
Baseline Situational Analysis										
Baglung	236	(60.5)	—	—	117	(49.6)	168	(56.8)	72	(50)
Lalitpur	154	(39.5)	—	—	119	(50.4)	128	(43.2)	72	(50)
Total	390	—	—	—	236	—	296	—	144	—
Followup										
Baglung	167	(55.9)	73	(58.4)	114	(46.3)	208	(67.9)	72	(57.1)
Lalitpur	132	(44.1)	52	(41.6)	132	(53.7)	98	(32)	54	(42.9)
Total	299	—	125	—	246	—	306	—	126	—

Note: Figures in parentheses are percentages of the column totals.

Table 2 shows that the total sample at the followup survey comprised 299 CPW, 125 women with a live birth in the past 3 months, and 246 husbands. Family members, including mothers-in-law, were 306 in number. Additionally, 126 community leaders were interviewed. As shown in **Table 2**, the division of the sample in the followup was comparable to that of the baseline situational analysis. The total sample of 1,194 at the baseline situational analysis comprised 390 currently pregnant married women, 236 husbands, 296 family members, and 144 community leaders. Note that married women with a live birth in the past 3 months were not interviewed in the baseline situational analysis survey. The baseline situational analysis was conducted only with currently pregnant married women

because the original plan was to re-interview the same panel of women after they had given birth at followup. However, delays in program implementation made this impossible.

Profile of Respondents

Age of Respondents

In both surveys, most of the currently pregnant married women were in the 24–29 years age group (baseline, 65.1%; followup, 65.6%). At the followup, slightly more than two-thirds (67.2%) of married women with a live birth in the past 3 months were in the same age group. A majority of the husbands also belonged to the 24–29 years age group (baseline, 63.6%; followup, 63.4%).

The mean age of the women at the followup survey was 24.2 years while that of the husbands was 27.5 years (**Table 3**). The mean age of family members, including mothers-in-law, was 46.7 years. Community leaders had a mean age of 40.4 years. The mean age of respondents in the baseline situational analysis was similar to that of respondents at followup.

Table 3. Mean Age of Respondents, by Type

Respondent Type	Baseline Situational Analysis				Followup Survey			
	Mean Age	SD	Min	Max	Mean Age	SD	Min	Max
Women (currently pregnant or with a live birth)	24.1	5.3	15	42	24.2	5.4	15	42
Husbands	27.9	7.5	18	56	27.5	7.2	16	67
Family Members (including mothers-in-law)	45.9	15.2	15	73	46.7	15.9	13	83
Community Leaders	41.0	12.2	18	75	40.4	13.6	19	77

Note: SD=standard deviation; Min=minimum; Max=maximum.

Educational Status and Occupation

Among respondents to the followup survey, nearly two-thirds (65.9%) of the CPW and more than half (53.6%) of the women with a live birth in the past 3 months reported having attended school. A majority (86.2%) of the husbands and a little more than one-fourth (28.1%) of the family members responded that they had attended school. Among respondents to the baseline situational analysis, half of the CPW (51.3%), more than four-fifths (82.6%) of the husbands, and one-fourth (25.3%) of the family members reported having attended school.

With respect to occupations, in the followup survey, 65 percent of respondents reported being engaged in agriculture, about 12 percent were employed in the service sector, and only 8 percent were unemployed. At the baseline, around 72 percent of the respondents stated that they were engaged in agriculture, and another 8 percent were employed in the service sector. Five percent were unemployed (**Table 4**).

Table 4. Percent Distribution of Respondents, by Occupation

Description	Baseline Situational Analysis		Followup Survey	
	Number	Percent	Number	Percent
Agriculture	770	72.2%	715	64.9%
Service	82	7.7	128	11.6
Daily Wages (non-agriculture)	53	5.0	40	3.6
Business	43	4.0	42	3.8
Daily Wages (agriculture)	12	1.1	6	0.5
Student	34	3.2	39	3.5
Cottage Industry	10	0.9	33	3.0
Unemployed	53	5.0	86	7.8
Cannot work	3	0.3	11	0.9
Other	6	0.6	2	0.2
Total	1,066	100	1,102	100

In terms of average monthly income, 70.5 percent of the women were in the “below Rs. 5,000” category at the time of baseline situational analysis, and 68.6 percent were in the same category at the followup survey. More than three-fourths of the husbands interviewed during the baseline (78%) and the followup (75.6%) surveys had an average monthly income of less than Rs. 5,000. More than one-fourth of the women (27.1%) at the time of the followup survey had an average monthly income of between Rs. 5,000 and 10,000. In the baseline results, the percentage of women reporting this level of income was slightly less (24.4%). Among husbands, 16.9 percent at baseline and 21.5 percent at followup earned between Rs. 5,000 and 10,000.

Ethnicity of Respondents

About half of the respondents to the followup survey belonged to the Chettry caste (27.5%) and the Mongoloid ethnic group (Rai/Limbu/Tamang/Gurung/Magar) (22.8%). Additionally, 16.8 percent were Newars, and 15.9 percent belonged to the Brahmin caste. The other ethnic groups represented in this sample were occupational caste (7.8%) and Tharu/Danuwar (6.3%). Muslims, Kumhars, Baniyas, and Sanyasis made up 3 percent. There were several differences in the ethnic composition of the sample population at baseline situational analysis and followup survey. During the baseline situational analysis, for example, the representation of Mongoloids (25.9%) was found to be the highest, followed by Chettry (23.9%) (**Table 5**).

Table 5. Percent Distribution of Respondents, by Ethnicity and Survey

Caste	Respondent Type				
	Women (currently pregnant)	Women (with a live birth)	Husbands	Family Members	Community Leaders
Baseline Situational Analysis					
Brahmin	15.4%	—	15.7%	20.6%	32.6%
Chettry	23.3	—	20.3	27	24.3
Newar	12.6	—	12.7	15.2	15.9
Mongoloid	26.4	—	29.7	25	22.2
Tharu	0.5	—	0.9	0	0
Occupational Caste	17.2	—	16.5	11.8	3.5
Other	4.6	—	4.2	0.34	1.4
Followup Survey					
Brahmin	12.4%	16.0%	13.0%	16.9%	19.1
Chettry	27.1	20.8	21.9	29.1	35.7
Newar	15.4	22.4	19.5	13.1	19.8
Mongoloid	23.4	24.0	23.6	23.5	19.8
Tharu	7.0	5.6	10.6	5.6	2.4
Occupational caste	10.7	8.8	9.4	8.8	0
Other	4.0	2.4	2.0	2.9	3.2

Baseline: Women (currently pregnant)—390; Husbands—236; Family Members—296; Community Leaders—144

Followup: Women (currently pregnant)—299; Women (with a live birth)—125; Husbands—246; Family Members—306; Community Leaders—126

Marital Status

The surveys focused on married women and their husbands. Among family members in the surveys, 69.3 percent of those in the baseline situational analysis were married and 74.5 percent of those in the followup reported being married. Some 88.2 percent of the community leaders responding to the baseline situational analysis reported being married, while 90.5 percent of community leaders in the followup reported that they were married.

Limitations of the Study

The baseline situational analysis was entirely rural while the followup was conducted in both rural and urban areas. The decision to undertake the baseline situational analysis only in rural areas was made based on an assumption that the initiative would be more relevant for rural audiences. However, given the political situation in Nepal, many of the local activities (such as street theater performances) had to be conducted in and around urban areas. Hence, the followup included both rural and urban areas.

As noted previously, only the rural sample from each of the two surveys was considered in the comparative results presented in this report. Kailali district contributed the largest sample during the baseline situational analysis. This district, however, had to be dropped from the followup as program activities were not implemented due to political instability, thereby vitiating the generalization of this

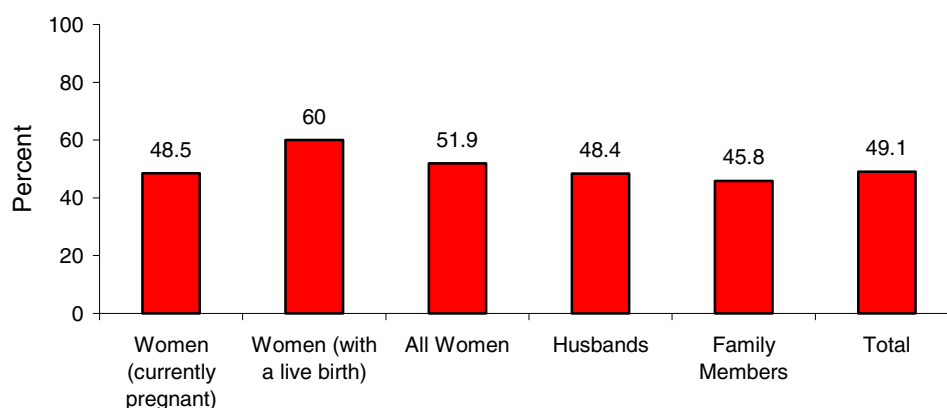
study. In addition, as the two districts were selected based on the program implementation design, the results in this report cannot be generalized to other districts in Nepal where individuals might have been exposed to the mass media component of the SUMATA initiative.

The intervention period was too short (approximately 3 months) to effect any significant behavioral change, a process that can take considerable time. Had the initiative been sustained over a longer period of time, the results would in all likelihood have been more robust. Moreover, numerous other agencies and partners have been active in the same areas where the SUMATA initiative was implemented, some over a longer period of time, making it difficult to attribute impacts noted in this report entirely to this specific initiative. However, the short duration of the initiative and the presence of other interventions do suggest explanations for some of the anomalous results described above and detailed in the following sections of this report.

EXPOSURE TO THE SUMATA INITIATIVE

In terms of exposure to the entire SUMATA initiative, of the total sample of 976, a little less than half (49.1%) of the respondents in the target districts were exposed to the initiative. Analysis by respondent type showed that 48.5 percent of the CPW and 60 percent of women with a live birth in the past 3 months reported having been exposed to the SUMATA initiative (**Figure 1**).

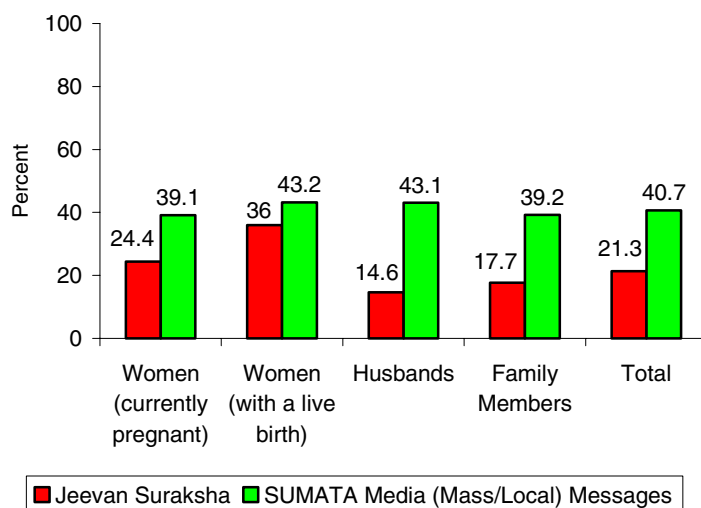
Figure 1. Exposure to SUMATA Initiative in Target Districts



Women (currently pregnant)—299; Women (with a live birth)—125; All Women—424; Husbands—246; Family Members—306; Total—976

The main components of the SUMATA initiative were counseling by a health worker using a *Jeevan Suraksha* flipchart and dissemination of media messages on SUMATA. More than one-fifth of the respondents reported being counseled for *Jeevan Suraksha*, and more than two-fifths were exposed to SUMATA mass and local media messages (**Figure 2**).

Figure 2. Exposure to SUMATA Initiative, by Respondent Type



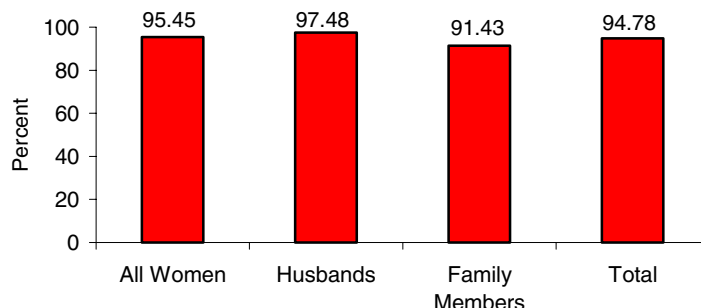
Women (currently pregnant)—299; Women (with a live birth)—125; Husbands—246; Family Members—306; Total—976

Figure 2 shows that all respondents were exposed to both SUMATA (mass media and local messages) and the *Jeevan Suraksha* in the MNH Program areas in Nepal. This figure highlights the necessity of implementing multi-level approaches to behavior change interventions. Although more respondents were exposed to SUMATA media (mass/local) messages than to the *Jeevan Suraksha*, each intervention played a different role in the behavior change process.⁵ Mass media improve overall awareness of issues, while interpersonal communication and counseling reinforce knowledge and can help move respondents to action.

Awareness of Information Contained in the SUMATA Initiative

Those respondents who were exposed to the SUMATA initiative were asked whether they had understood the messages contained therein. An overwhelming majority (94.8%) of the exposed group of respondents affirmed that they had understood the messages and were able to list specific messages. Even when analyzed by respondent type, more than 90 percent of the respondents in all categories reported comprehending the messages (**Figure 3**).

Figure 3. Awareness of Information Contained in SUMATA Initiative



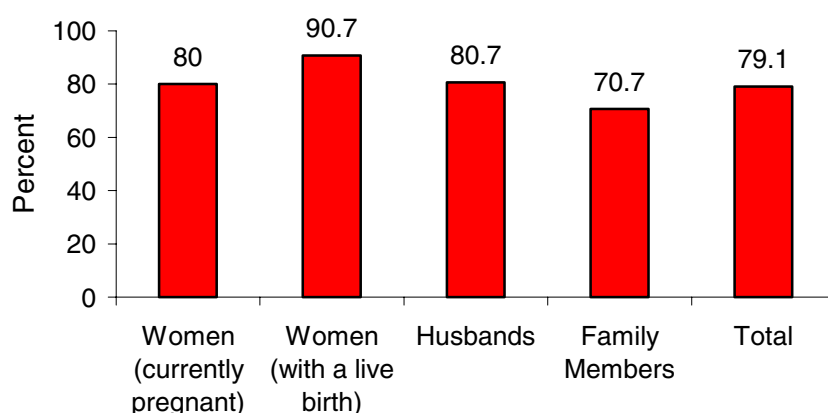
All Women—220; Husbands—119; Family Members—140; Total—479

⁵ It is also important to note that *Jeevan Suraksha* was not implemented in the rural areas of Lalitpur, thus decreasing the total population base of potential respondents.

Actionability

“Intentions” and “use” are identified as the final stages in the adoption of any new behavior according to the “Steps in Behavior Change” model.⁶ Consequently, these areas were examined in this study as well. Respondents who were exposed to the SUMATA initiative were asked whether they had used the information contained in SUMATA activities. A significant proportion (79.1%) of those who were exposed responded in the affirmative. More than four-fifths (83.6%) of the women respondents acknowledged using the information that they had learned from the SUMATA initiative. Eight of ten CPW and nine of ten women with a live birth in the past 3 months reported using the information contained in this initiative. Furthermore, about eight of ten husbands and seven of ten family members agreed that they had used the information (**Figure 4**).

Figure 4. Use of Information Contained in SUMATA Initiative



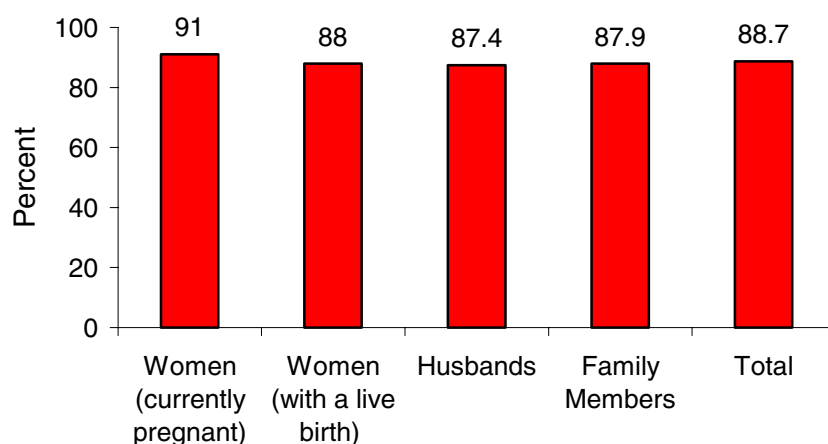
Women (currently pregnant)—145; Women (with a live birth)—75; Husbands—119; Family Members—140; Total—479

Not surprisingly, given the known benefits of personal interaction, exposure to the *Jeevan Suraksha* resulted in higher levels of action among those exposed to both the *Jeevan Suraksha* and SUMATA media messages than among those who were exposed to the SUMATA media messages alone. Similar actions were reported regardless of exposure to *Jeevan Suraksha* or the SUMATA media messages. The most common actions mentioned were antenatal care (ANC) visits and provision of family support by way of sharing workload and saving money.

The overall percentage of respondents who *intended* to use information from SUMATA was nearly 9 percent higher than the percentage of respondents who actually used the information. Some 88.7 percent of the respondents who were exposed to the SUMATA initiative expressed their intentions to use the information. Analysis by respondent type is presented in **Figure 5**.

⁶ Piotrow PT et al. 1997. *Health Communication: Lessons from Family Planning and Reproductive Health*. Praeger Publishing: Westport, CT.

Figure 5. Intention to Use Information Contained in SUMATA Initiative



Women (currently pregnant)—145; Women (with a live birth)—75; Husbands—119; Family Members—140; Total—479

INFLUENCE OF SUMATA INITIATIVE

The impact of the SUMATA initiative has been evaluated by measuring the changes reflected in the knowledge, opinions, and attitudes of the intended audiences. An analysis of a few questions pertaining to knowledge, opinions, and attitudes of the respondents on maternal and newborn health was undertaken with reference to the baseline situational analysis and the followup survey. Comparisons of those exposed and unexposed to the SUMATA initiative at the followup were also made. Specific indicators under consideration include the following:

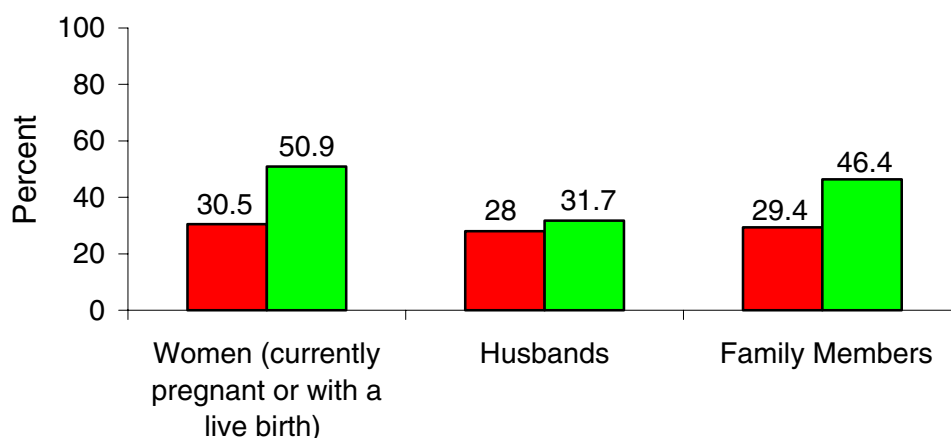
- Knowledge of some specific danger signs during pregnancy, childbirth, and the postpartum period, and in newborns
- Knowledge of transport and funding schemes in the community in order to prepare for safe childbirth
- Number of ANC visits during pregnancy
- Arrangements pertaining to transport and funds ensuring safe childbirth
- Place of childbirth and type of assistance during childbirth

Knowledge of Danger Signs during Pregnancy

Vaginal Bleeding

Vaginal bleeding is a danger sign during pregnancy. **Figure 6** demonstrates a marked increase between the baseline situational analysis and the followup survey in the knowledge levels of the respondents to the surveys. At the baseline situational analysis, about three-tenths of the CPW, husbands, and family members stated that bleeding is a danger sign during pregnancy. There was an increase at the followup, particularly for women (50.9%) and family members (46.4%).

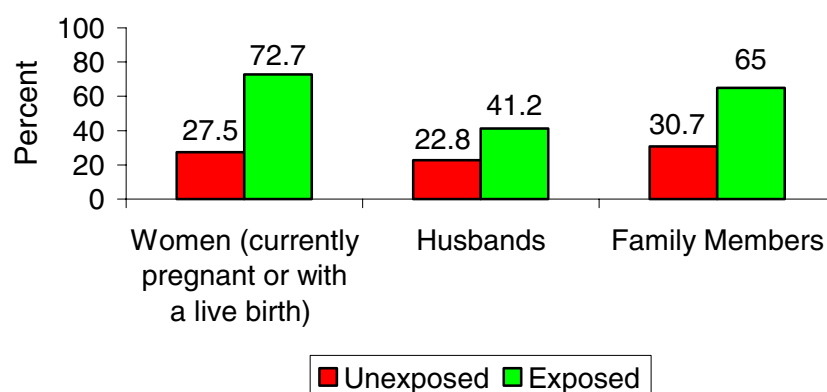
Figure 6. Knowledge of Vaginal Bleeding as a Danger Sign during Pregnancy, by Survey



Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
 Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

Furthermore, those respondents who were exposed to the SUMATA initiative had significantly higher levels of awareness of vaginal bleeding as a danger sign during pregnancy than did those who were not exposed. This was true for all categories of respondents (**Figure 7**).

Figure 7. Knowledge of Vaginal Bleeding as a Danger Sign during Pregnancy, by Exposure



Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
 Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

Figure 7 illustrates that the SUMATA initiative had a positive impact on the intended audience in terms of knowledge of vaginal bleeding as a danger sign during pregnancy.

Knowledge of Danger Signs during Childbirth

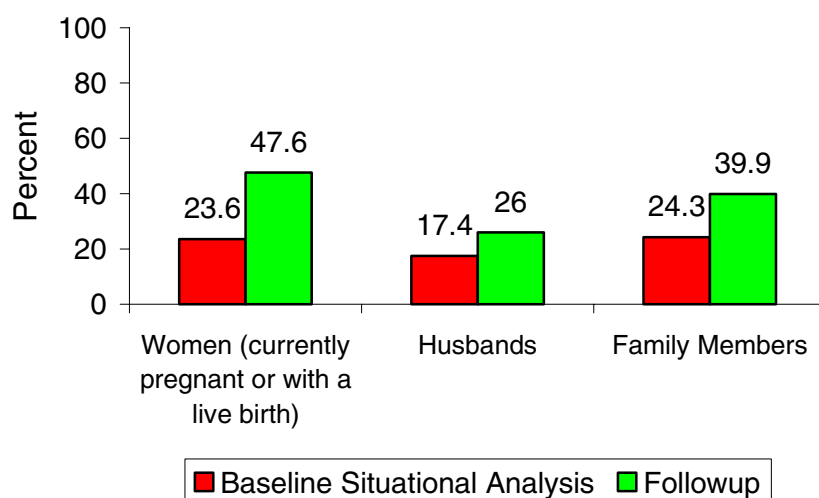
This report focuses on three danger signs during childbirth: severe vaginal bleeding, prolonged labor, and retained placenta.

Severe Vaginal Bleeding

Figure 8 shows that respondents to the followup survey were more cognizant than respondents in the baseline situational analysis of the fact that severe vaginal bleeding is a danger sign during

childbirth. About 24 percent of the CPW interviewed during the baseline situational analysis were aware of severe vaginal bleeding as a danger sign at the time of childbirth, and about 48 percent had this knowledge at the followup. There were increases of about 9 percent and 16 percent in the knowledge levels of husbands and family members respectively from baseline situational analysis to followup (**Figure 8**).

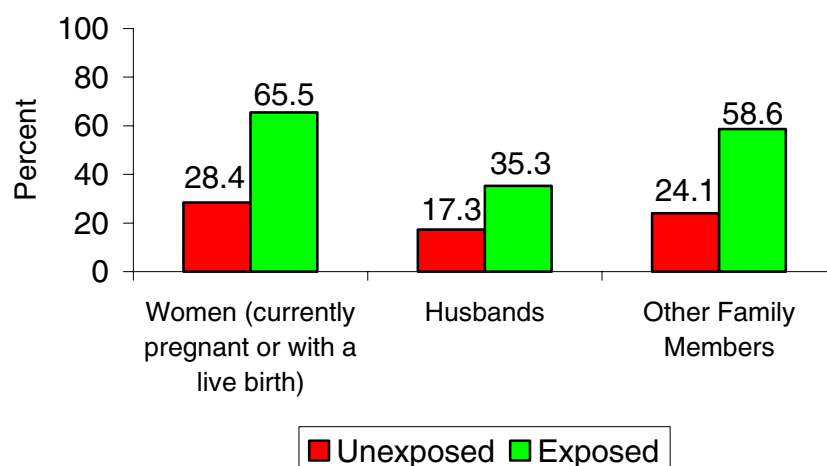
Figure 8. Knowledge of Severe Vaginal Bleeding as a Danger Sign during Childbirth, by Survey



Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
 Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

Moreover, the respondents who were exposed to the initiative had higher awareness levels than the unexposed group of respondents. **Figure 9** shows that about two-thirds of the CPW and women with a live birth in the past 3 months who were exposed to the SUMATA initiative were aware of severe vaginal bleeding as a danger sign at childbirth. About 35 percent of the husbands and 59 percent of family members who were exposed to the initiative were similarly aware (**Figure 9**).

Figure 9. Knowledge of Severe Vaginal Bleeding as a Danger Sign during Childbirth, by Exposure

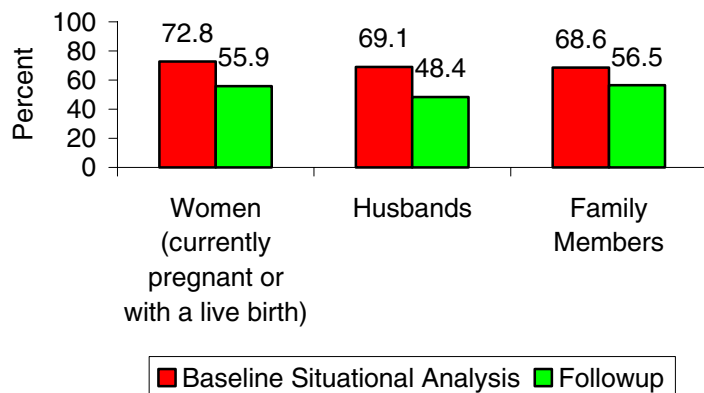


Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
 Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

Prolonged Labor

Awareness of prolonged labor, or labor lasting more than 12 hours, as a danger sign at the time of childbirth was considerably lower at the followup across all categories of respondents (**Figure 10**).

Figure 10. Knowledge of Prolonged Labor as a Danger Sign during Childbirth, by Survey

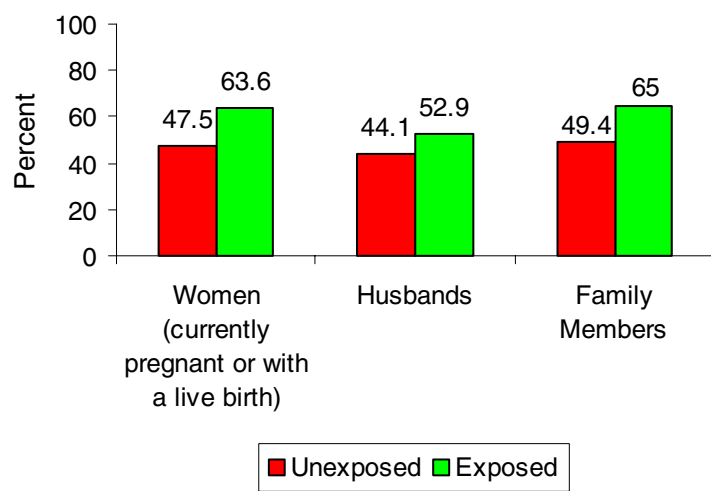


Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

The drop in overall awareness of prolonged labor as a danger sign at childbirth is rather puzzling since methodologically the questions were asked exactly in the same manner at both times. However, definitions of prolonged labor varied among different materials. The BPP identifies a labor of 8–10 hours as prolonged, whereas other materials use a broader definition of more than 8 hours. Whether or not this slight variation created some confusion, a lesson learned is that materials in an awareness and behavior change campaign should be entirely consistent in their use of terms and definitions.

Those exposed to the SUMATA initiative were still more likely than those not exposed to report awareness of prolonged labor as a danger sign (**Figure 11**).

Figure 11. Knowledge of Prolonged Labor as a Danger Sign during Childbirth, by Exposure

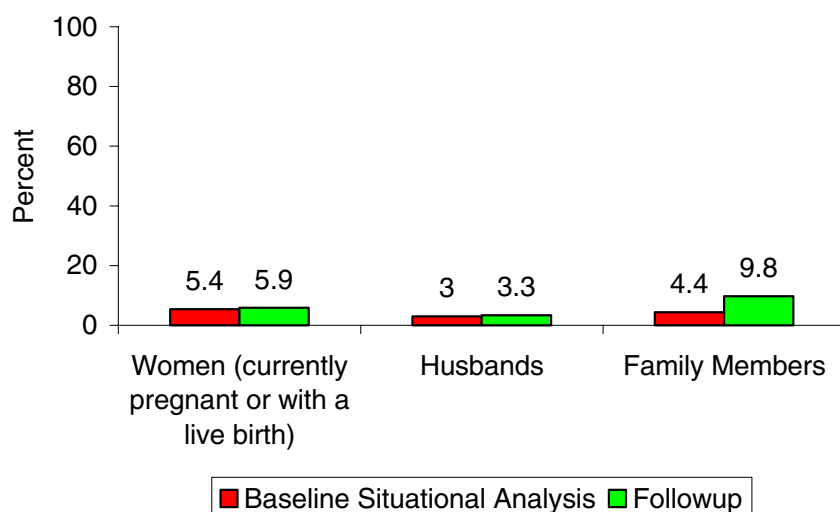


Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

Retained Placenta

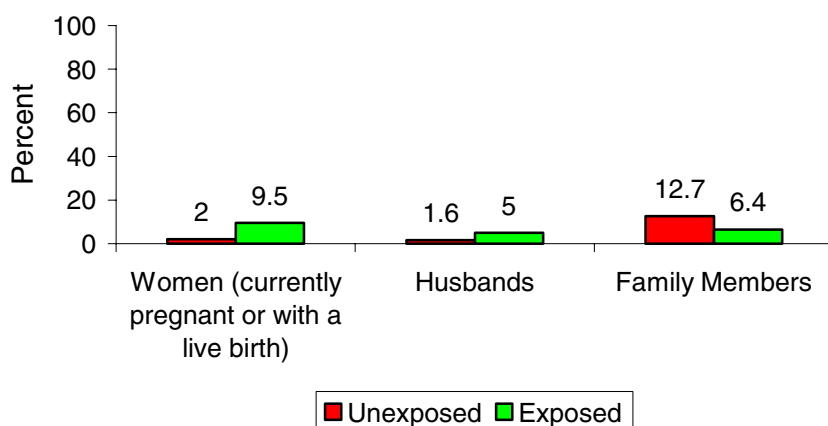
Retained placenta had been defined as “placenta not delivered within 30 minutes” for the purpose of this research. The knowledge level of the respondents in both of the surveys was found to be quite low compared to knowledge of other danger signs. Furthermore, there seemed to be no change in the awareness levels of respondents from baseline to followup. Retained placenta was not included in the majority of the SUMATA materials, but the initiative appears to have had a positive impact as those who were exposed had marginally higher levels of knowledge. The exception is unexposed family members, who were more aware (12.7%) than those exposed (6.4%) (**Figure 12** and **Figure 13**). This result may simply be a function of the small numbers in these groups coupled with overall low levels of awareness of this danger sign among the entire population.

Figure 12. Knowledge of Retained Placenta as a Danger Sign during Childbirth, by Survey



Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
 Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

Figure 13. Knowledge of Retained Placenta as a Danger Sign during Childbirth, by Exposure



Unexposed: Women (currently pregnant/with a live Birth)—204; Husbands—127; Family Members—166
 Exposed: Women (currently pregnant/with a live Birth)—220; Husbands—119; Family Members—140

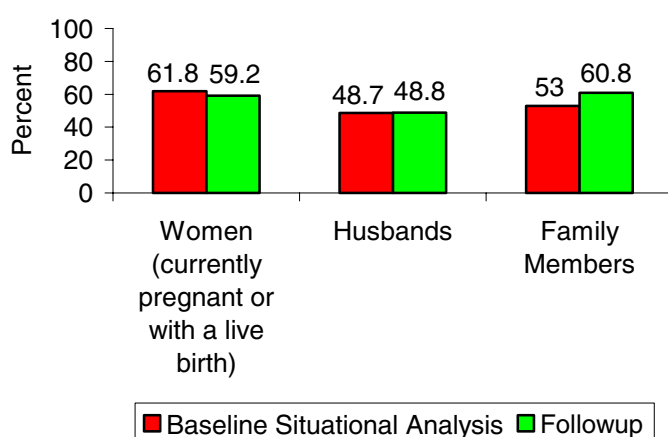
Knowledge of Danger Signs during the Postpartum Period

Severe Vaginal Bleeding

Postpartum hemorrhage is the most significant cause of maternal mortality in Nepal, as evidenced in the 1998 MMMS. For the purpose of this research, the postpartum period was defined as the first four weeks after childbirth.⁷

With regard to severe vaginal bleeding as a danger sign during the postpartum period, there appeared to be no substantial change over time among women and husbands. Awareness increased among family members from 53 percent at baseline to 60.8 percent at followup (**Figure 14**).

Figure 14. Knowledge of Severe Bleeding as a Danger Sign during the Postpartum Period, by Survey

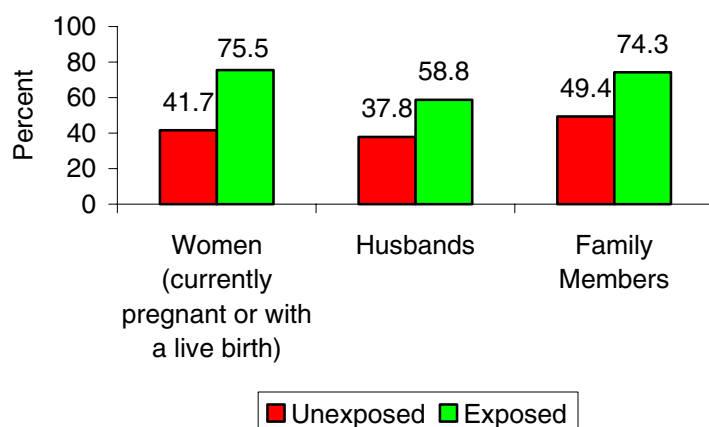


Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

However, among respondents who were exposed to the SUMATA initiative, the awareness levels were found to be higher than those who were not exposed (**Figure 15**). This finding is specifically noteworthy because postpartum bleeding is the major cause of maternal mortality all over the world.

⁷ *Maternal Mortality and Morbidity Study, 1998*. Family Health Division, Department of Health Services, His Majesty's Government of Nepal.

Figure 15. Knowledge of Severe Bleeding as a Danger Sign during the Postpartum Period, by Exposure

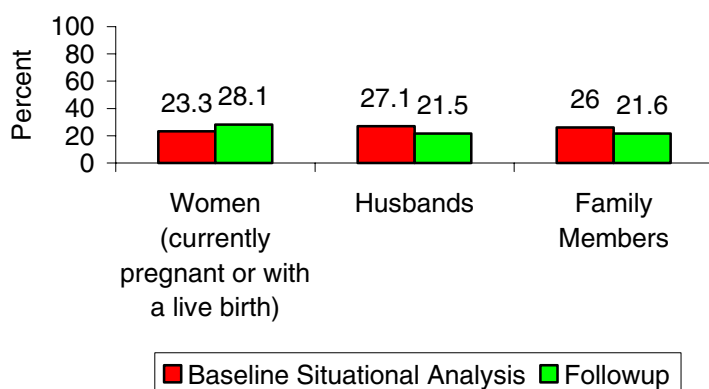


Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
 Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

High Fever

Only among CPW and women with a live birth in the past 3 months was there an increase from the baseline situational analysis (23.3%) to the followup survey (28.1%) in reporting high fever as a danger sign during the postpartum period (**Figure 16**).

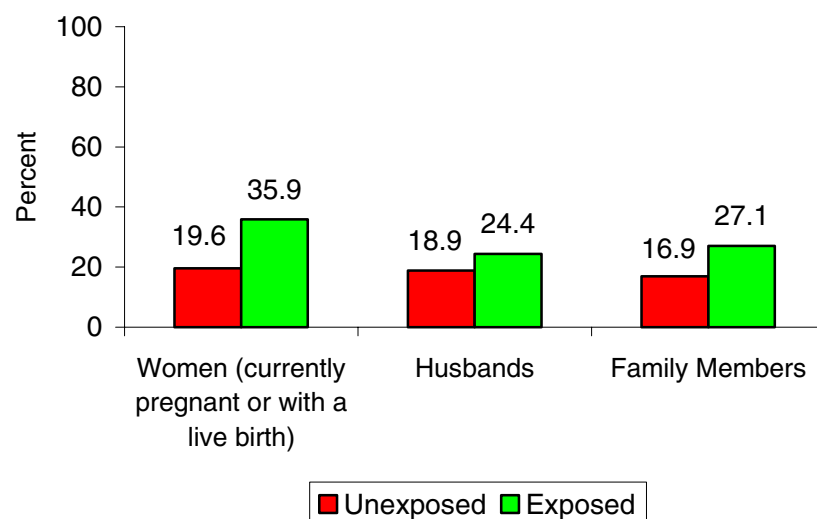
Figure 16. Knowledge of High Fever as a Danger Sign during the Postpartum Period, by Survey



Baseline Situational Analysis: Women (currently pregnant)—390; Husbands—236; Family Members—296
 Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

There was a clear trend in the followup survey results showing that respondents who were exposed to the SUMATA initiative were more aware than those who were not exposed (**Figure 17**).

Figure 17. Knowledge of High Fever as a Danger Sign during the Postpartum Period, by Exposure



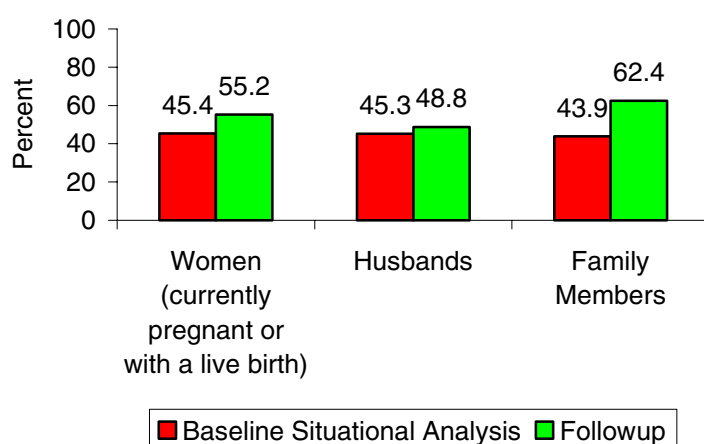
Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
 Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

Knowledge of Danger Signs in the Newborn

Difficult or Fast Breathing

For the purpose of this research, the newborn period was defined as the first four weeks after birth. About 45 percent of women at the baseline situational analysis reported that difficult or fast breathing in the newborn is a danger sign. At the followup, this danger sign was recognized by 55 percent of women. There was only a marginal increase for husbands, but for family members there was an increase of nearly 20 percent from baseline to followup (Figure 18).

Figure 18. Knowledge of Difficult or Fast Breathing as a Danger Sign in the Newborn, by Survey

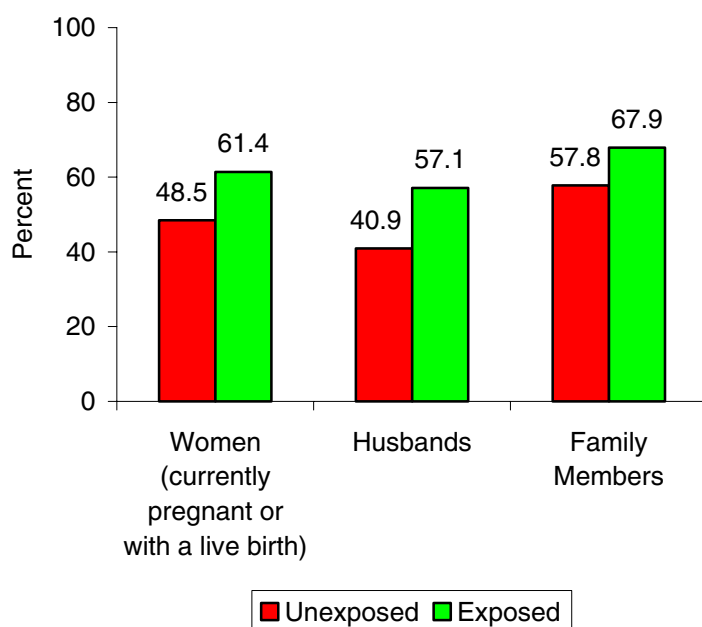


Baseline Situational Analysis: Women (currently pregnant/with a live birth)—390; Husbands—236; Family Members—296
 Followup: Women (currently pregnant/with a live birth)—424; Husbands—246; Family Members—306

Furthermore, 61 percent of the CPW who were exposed to the SUMATA initiative recognized difficult or fast breathing to be a danger sign in newborns, compared to 49 percent of those who

were not exposed. More than half (57.1%) of the husbands and two-thirds (67.9%) of the family members who were exposed to this initiative were cognizant of this aspect (**Figure 19**).

Figure 19. Knowledge of Difficult or Fast Breathing as a Danger Sign in the Newborn, by Exposure



Unexposed: Women (currently pregnant/with a live birth)—204; Husbands—127; Family Members—166
Exposed: Women (currently pregnant/with a live birth)—220; Husbands—119; Family Members—140

Knowledge of Community Schemes for the Welfare of Women and Newborns

In addition to danger signs, respondents were asked whether they were aware of any existing schemes in their respective communities that would help women have a safe childbirth and also enable them to take care of newborns.⁸ The study focused on schemes pertaining to transportation and funding. **Table 6** shows a substantial increase at the time of the followup in awareness of transport and funding schemes across all categories. However, note that in comparison to the baseline situational analysis, awareness levels at followup were substantially higher among both the exposed and the unexposed groups. Consequently, the increase in awareness cannot be attributed to the SUMATA initiative alone. At the same time, husbands exposed to the SUMATA initiative were less likely to be aware of funding schemes than those who were not exposed (**Table 6**).

⁸ These numbers are self-reported, so they cannot be interpreted as the percentage of women who actually lived in communities that had emergency systems. We did not attempt to verify that systems actually existed in the communities where women reported that their communities had these systems. In addition, some women may not have been aware that their communities had these systems.

Table 6. Percent of Respondents Who Know of Community Schemes for the Welfare of Women and Newborns

Community Schemes	Respondent Type								
	Women (currently pregnant or with a live birth)			Husbands			Family Members		
Baseline Situational Analysis									
Transport	4.8%			2.5%			6.1%		
Funds	3.6			3.0			5.4		
Total	390			236			296		
Followup									
	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total
Transport	59.4%	27.5%	44.1	58.0%	29.1%	43.1	67.1%	39.2%	52.0
Funds	67.3	45.6	58.8	60.5	65.7	52.8	70.0	50.0	59.2
Total	220	204	424	119	127	246	140	166	306

The community leaders were also asked whether they were aware of any schemes in their communities for the welfare of women and newborns. Again, there were significantly higher awareness levels among respondents to the followup. However, it was surprising to note that unexposed community leaders were more likely to report awareness of funding schemes than the exposed group of leaders (Table 7).

Table 7. Percent of Community Leaders Who Know of Community Schemes for the Welfare of Women and Newborns

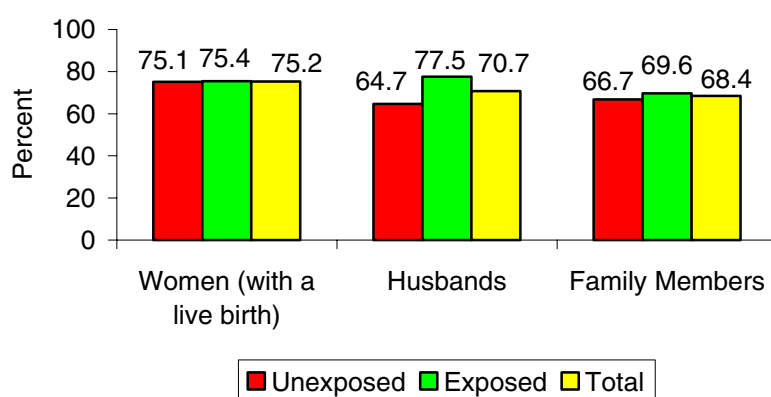
Community Schemes	Community Leaders		
Baseline Situational Analysis (N=144)			
Transport	7.6%		
Funds	5.6		
Followup (N=126)			
	Exposed	Unexposed	Total
Transport	61.9%	52.4%	60.3%
Funds	67.6	76.2	69.0

The findings regarding awareness of funding schemes among husbands and community leaders may reflect the fact that some messages were included in *Jeevan Suraksha*, which was not used with husbands or community leaders, raising again the issue of coordination of communications materials and messages. It is a positive sign that awareness of such schemes was higher at the followup survey than at the baseline situational analysis. However, those exposed to the SUMATA initiative were less likely to be aware of such schemes than were those not exposed to the initiative. At the same time, it is important to note that the MNH Program did not aim specifically to strengthen community-based transport or funding schemes, leaving that to other SM organizations operating in these areas, whose information may not have reached husbands and community leaders. For funding schemes to become a significant aspect of BP/CR in Nepal, more concerted and long-term efforts will be required at the local level, first to raise awareness and then to change behavior.

Antenatal Care Visits

As the baseline included CPW who had sought different levels of antenatal care depending on the stage of their pregnancy, results reported below are only from the followup survey. There was no significant difference between exposed and unexposed groups as far as ANC visits were concerned. Among women with a live birth in the past 3 months, three-fourths of both those who were exposed to the SUMATA initiative and those who were not asserted that they had had four or more ANC visits. Similarly, more than two-thirds of family members in both the exposed and unexposed categories said the same. The exception was husbands, as 77.5 percent of those exposed reported that their wives had had four or more ANC visits, compared to 64.7 percent of the unexposed group (**Figure 20**). The remaining respondents in both groups across all categories mentioned one to three ANC visits.

Figure 20. Four or More ANC Visits, by Exposure



Unexposed: Women (with a live birth)—44; Husbands—34; Family Members—27
Exposed: Women (with a live birth)—69; Husbands—31; Family Members—46
Total: Women (with a live birth)—113; Husbands—65; Family Members—73

Arrangements for Safe Childbirth

Arrangements for safe childbirth include planning for transport, finances, and a skilled provider. At baseline, only 1.5 percent of CPW, 3 percent of husbands, and 3 percent of family members reported planning for transportation. A substantially higher percentage of respondents in the followup survey, across all categories, acknowledged planning for transport (**Table 8**).

With respect to financial arrangements, the baseline situational analysis showed that about 35 percent of CPW said that they had planned financially. This percentage was more than doubled in the followup, with an overwhelming majority (81.4%) of women reporting that they made financial plans. This trend held for husbands and family members as well (**Table 8**). Knowledge of funding schemes in the community was lower for husbands exposed to the SUMATA initiative compared to those not exposed, but reporting of individual financial arrangements was higher among those husbands who were exposed to the SUMATA initiative. These results are an indication that perhaps the messages in the SUMATA initiative were targeted more toward saving money at the individual and family levels rather than toward the establishment and use of community-level financial schemes. In addition, *Jeevan Suraksha* included a set of locally appropriate messages for individuals and families about saving money for childbirth. Also, these findings may, to an extent, be a reflection of the socio-cultural reality in Nepal, where financial arrangements are considered to be individual and familial

responsibilities rather than something that require community level participation and response. Further analysis and research are required to shed more light on these findings.

As far as arrangements for a skilled provider were concerned, **Table 8** shows an increase in the percentage of women, husbands, and family members who reported making arrangements for a skilled provider.

Exposed groups were more likely than unexposed groups to have made prior arrangements for transport, finances, and a skilled provider, but unexposed groups in the followup were more likely to have made prior arrangements than respondents in the baseline (**Table 8**). Thus, it is unclear whether improved planning arrangements at followup can be attributed solely to exposure to SUMATA messages. In other words, although exposure to the initiative had a substantial impact in this regard, it is important to keep in mind that other interventions might also have played a role in improved BP/CR.

Table 8. Percent of Respondents Who Made Arrangements for Childbirth

Arrangement	Respondent Type								
	Women (currently pregnant or with a live birth)			Husbands			Family Members		
Baseline Situational Analysis									
Transport	1.5%			3.0%			3.0%		
Finances	35.4			41.1			40.2		
Skilled Provider	4.4			9.3			6.1		
Total	390			236			296		
Followup									
	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total
Transport	19.1%	8.3%	13.9%	32.8%	11.8%	22.0%	33.6%	15.7%	23.9%
Finances	83.2	79.4	81.4	85.7	81.9	83.7	82.9	80.7	81.7
Skilled Provider	21.4	9.3	15.6	24.4	11.0	17.5	28.6	12.7	19.9
Total	220	204	424	119	127	246	140	166	306

Place of Childbirth

Respondents were also asked about the place of childbirth. At the baseline situational analysis, an overwhelming majority of women (close to 9 out of 10) who had had a live birth in the past indicated that they had given birth at home (**Table 9**). In contrast, at the followup, slightly more than one-third of the women who had had a live birth in the past 3 months gave birth in the hospital and about two-thirds reported having given birth at home. Husbands and family members also showed an increase from the baseline to the followup with respect to childbirth in the hospital. Childbirth in the hospital was substantially higher at followup compared to the baseline among women who had given birth in the past. However, this comparison is not entirely parallel, as baseline numbers are for CPW who had had a live birth in the past without a specified timeframe, whereas followup numbers represent women with a live birth within the past 3 months.

At the same time, women with a live birth and family members who were exposed to SUMATA were more likely than the unexposed group to have given birth at home (**Table 9**). Surprisingly, similar results were not discernible for husbands, as a higher percentage of those exposed to the initiative than those not exposed reported that their wives had given birth in the hospital (46.9% and 29%, respectively). These seemingly paradoxical results may be attributed in part to the range of other programs being implemented in the field of SM by several organizations in these two districts. They may also be the result of a relatively small sample size or socio-demographic differences (in general, those exposed to the initiative reported slightly lower levels of education and socio-economic status). A larger study could reveal further explanatory patterns.

Table 9. Percent Distribution of Respondents, by Place of Childbirth

Place of Childbirth	Respondent Type								
	Women (currently pregnant or with a live birth)			Husbands			Family Members		
Baseline Situational Analysis									
Hospital	11.6%			19.5%			12.3%		
Clinic*	0.8			2.7			2.3		
Home	87.6			77.9			85.4		
Total	241			149			130		
Followup									
	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total
Hospital	29.3%	42.0%	34.4%	46.9%	29.0%	37.1%	27.1%	31.0%	28.6%
Clinic*	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.5	2.6
Home	70.7	58.0	65.6	53.1	62.9	62.9	70.8	65.5	68.8
Total	75	50	125	32	38	70	48	29	77

Note: Baseline situational analysis data are only for CPW with a live birth in the past and their husbands and family members.

* Clinic includes Primary Health Center, Health Post, Sub-Health Post, and Outreach/NGO Clinic.

Type of Assistance during Childbirth

It is important to note that the SUMATA initiative did not specifically promote facility-based births; rather, the campaign promoted skilled attendance at birth, including home births. Those reporting childbirth with the help of a doctor increased from the baseline situational analysis to the followup survey, which corresponds with the larger percentage of women at the followup who reported giving birth in a hospital. However, those exposed to the SUMATA initiative were less likely than those who were not exposed to report being assisted by a doctor (29.3% and 42%, respectively). Also, those exposed to the initiative were more likely to report giving birth at home with assistance from a female community health volunteer or traditional birth attendant. A similar trend was observed for family members. In contrast, husbands who were exposed to the initiative were more likely than unexposed husbands to report that their wives gave birth with assistance from a skilled provider. Slightly less than half (46.9%) of the husbands who were exposed said that their wives gave birth with assistance from a doctor (**Table 10**).

Table 10. Percent Distribution of Respondents, by Type of Assistance during Childbirth

Type of Assistance	Respondent Type								
	Women (currently pregnant/with a live birth)			Husbands			Family Members		
Baseline Situational Analysis									
Doctor	11.6%			19.5%			12.3%		
Nurse/ANM	0.8			2.7			2.3		
At home with a skilled attendant (MCHW)	2.1			1.3			3.9		
At home with a community provider	29.5			34.2			29.2		
At home with family, elder women from village	56.0			42.3			52.3		
Total	241			149			130		
Followup									
	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total	Exposed	Not Exposed	Total
Doctor	29.3%	42.0%	34.4%	46.9%	29.0%	37.1%	27.1%	31.0%	28.6%
Nurse/ANM	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.5	2.6
At home with a skilled attendant (MCHW)	4.0	0.0	2.4	2.6	2.6	2.9	0.0	6.9	2.6
At home with a community provider	25.3	12.0	20.0	12.5	23.7	18.6	20.8	13.8	18.2
At home with family, elder women from village	41.3	46.0	43.2	37.5	44.7	41.4	50.0	44.8	48.1
Total	75	50	125	32	38	70	48	29	77

As with the trends in place of childbirth, positive gains between baseline and followup occurred with reported presence of a skilled provider at birth, but the difference between those exposed and not exposed to the SUMATA initiative was not great. Women who were exposed to the SUMATA initiative were more likely to report that they gave birth at home with an MCHW (4% compared to none) or at home with a community provider (25% compared to 12% of unexposed). Although

women who were not exposed to the SUMATA initiative were significantly more likely to give birth with a doctor in attendance, they were also marginally more likely to give birth at home with only family members present. These differences, as reported earlier, might be attributed to the small sample size. The preponderance of women who were not exposed to the initiative but planned to give birth at a hospital with a doctor in attendance might also be a function of the level of education and socio-economic status of the unexposed group.

CONCLUSIONS

Even in a short period of time, the SUMATA initiative had a positive impact on the intended audience. The fact about half of the sampled population was exposed to some element of the SUMATA initiative is noteworthy. Even more positive is that an overwhelming majority of those exposed to the SUMATA initiative reported comprehending the specific messages. In addition, more than three-fourths of the exposed group reported using information or intending to do so in the future.

With respect to the impact of the initiative, clear trends emerge for many SUMATA aspects, while other findings merit further research and more in-depth analysis. Awareness levels of danger signs such as vaginal bleeding during pregnancy, severe vaginal bleeding during childbirth, high fever during the postpartum period, and difficult or fast breathing in the newborn increased from the baseline situational analysis to the followup survey. However, there was a decline from baseline to followup in knowledge of prolonged labor as a danger sign during childbirth. Such results are hard to explain and merit further analysis. There appears to be no overall trend in awareness of retained placenta, which could be due to the fact that SUMATA messages did not emphasize retained placenta as a danger sign. With respect to comparisons between exposed and unexposed groups, knowledge of specific danger signs at pregnancy (vaginal bleeding), childbirth (severe vaginal bleeding, prolonged labor, and retained placenta), and postpartum (severe vaginal bleeding and high fever) was higher among the exposed group.

There was a remarkable increase from the baseline situational analysis to the followup survey in terms of knowledge of transport and funding schemes in the community. Regarding transport schemes, those exposed to SUMATA were significantly more likely than those not exposed to be aware of such schemes. As for awareness of funding schemes, survey results with respect to women and family members were positive (i.e., those exposed to the SUMATA initiative were more likely to have had heard about funding schemes). Findings pertaining to awareness of funding schemes among husbands and community leaders indicate a positive direction, but those exposed to SUMATA were less likely to be aware of such schemes in comparison with those not exposed. A more comprehensive approach for these audiences may be required to achieve better results. It is also important to note that knowledge levels of community-based funding and transport schemes among unexposed respondents were also significantly higher at followup than during the baseline situational analysis. The question of great relevance, then, is the extent to which higher levels of awareness among exposed groups are effects of SUMATA alone.

With respect to individual and family preparedness for safe childbirth, a clear trend emerged, with all categories of respondents at the followup reporting higher levels of preparedness in terms of transport, finances, and skilled attendance than did respondents at baseline. Those exposed to the SUMATA initiative were significantly more likely to be better prepared with regard to transport, finances, and skilled attendance than their unexposed counterparts. As noted above, however, awareness levels were also substantially higher in the unexposed groups than awareness among

respondents to the baseline situational analysis. Therefore, it is possible that interventions other than the SUMATA initiative played a role in improving BP/CR.

The findings pertaining to individual financial preparedness raise crucial questions. Although husbands exposed to the SUMATA initiative reported lower levels of knowledge of funding schemes at the community level, they simultaneously reported fairly high levels of individual preparedness as far as finances were concerned. If these findings reflect the socio-cultural reality in Nepal concerning financial decision-making, and if financial arrangements are considered individual/familial responsibilities rather than issues benefiting from community-level participation, future awareness and behavior change programming will need to take these factors into account.

For findings such as “place of childbirth” and “person present at time of childbirth,” in which exposed groups were less aware than unexposed groups of the need to give birth with assistance from a skilled provider, socio-demographic and socio-economic differences between the exposed and unexposed individuals may provide some insight into these results. The relatively short duration of the initiative, possible lack of clarity in terms of who should be considered a skilled/preferred provider, and other programs affecting groups not exposed to SUMATA may be factors contributing to these complex findings.

LESSONS LEARNED

Overall, it appears clear that SUMATA did create a favorable impression on the intended population. Although some results are mixed, the overall reach and effect was not insignificant for such a short program, and this type of multilevel behavior change approach could be quite effective if sustained over a longer period of time. In addition, it is difficult to attribute changes in behaviors to the SUMATA initiative alone owing to the intense number of complementary activities supported by other international organizations in these districts.

Lessons learned include the following:

- Developing and implementing behavior change programs requires adequate time for planning with partner organizations, building consensus around messages and materials, as well as implementation time of at least 1 year in order to measure impact.
- Ensuring coordination and consistency among all IEC/BCC materials is crucial so that messages are clear.
- SM partners have implemented SUMATA in other districts in addition to Baglung and Lalitpur. This followup survey was not intended to measure the influence of SUMATA in other districts, which may underestimate the overall effect of the initiative.
- The followup survey for evaluation did not capture some of the more innovative SUMATA activities, including the television drama aired in July 2003, district-level broadcasts of radio vignettes in June 2003, and local language translation and district-level broadcast of radio vignettes by NSMP beyond the pilot areas. Further determination of program design effectiveness requires qualitative data for further analysis.
- His Majesty's Government of Nepal supports many SM partners in an effort to reduce maternal and neonatal mortality. In the area of behavior change, many partners are implementing complementary activities. Thus, it is difficult to attribute any changes in knowledge, attitudes, intentions, or behaviors to any one program.

